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A new species of *Euryphymus* from the Kalahari (Orthoptera, Acrididae)

by

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Euryphymus kalahariensis sp. nov. is described. Its known distribution extends from the northeastern to the southwestern Kalahari.

The genus *Euryphymus* at present consists of *E. haematopus* Linnaeus, *E. eremobioides* Bolivar, and *E. tuberculatus* Martinez from southern Africa, and *E. exemptus* (Walker) from the Malagasy Republic. Dirsh (1965) gives a diagnosis of the genus, and Johnston (1956, 1968), references to descriptions of the species. Little is known about the ecology and life-cycles of *Euryphymus* species.

Euryphymus kalahariensis sp. nov., Figs. 1–3, 7–12.

Differs from other species in the genus in having the frontal ridge above the median ocellus flat instead of moderately sulcate, disc of pronotum smooth or slightly rugose with small tubercles instead of ridged or markedly tuberculate, and in having a comparatively low pronotal median carina. The male may also be distinguished by its cercus (Figs. 3–6).

MALE. Small grasshopper of sturdy build and sparsely hairy integument. Antennae filiform, slightly compressed, slightly longer than head and pronotum together. Head subglobular. Frontal ridge flat above median ocellus, very slightly concave at median ocellus, this depression extending not more than halfway to epistomal suture. Fastigium of vertex with deep elongate concavity and well developed, almost sharp, lateral carinulae; posterior third of concavity with median carinula which extends backwards about halfway to occiput, at its posterior end flanked on either side by a very short, low, tubercle-like carinula (Fig. 1). Dorsum of pronotum low tectiform, almost smooth apart from few small tubercles, with low median carina; lateral carinae obtuse, regular, slightly diverging towards posterior, especially in prozona; median and lateral carinae interrupted by three transverse sulci. Immediately anterior to posterior sulcus, midway between median and lateral carinae on each side, small tubercle flanked medially by short narrow depression. Prozona slightly shorter than metazona; posterior border of pronotum obtuse-angular. Prosternal process spathulate, anteriorly-posteriorly compressed. Mesosternal interspace slightly longer than broad. Tegmina and hind

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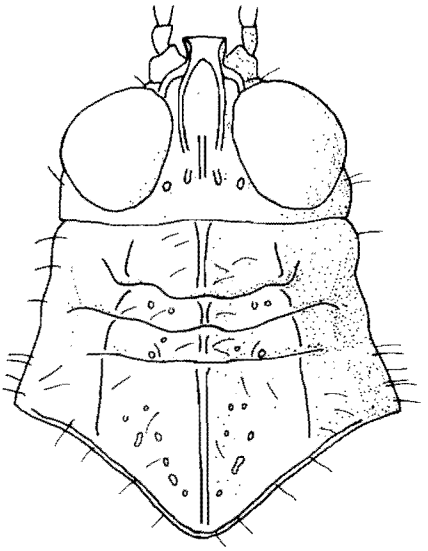
wings well developed, reaching beyond abdomen and slightly beyond hind knee of hind femur. Hind femur robust; hind tibia normally with eight outer and nine inner spines.

Last abdominal tergite with well sclerotized posterior margin. Supra-anal plate almost rectangular in shape, with transverse row of four low sclerotized tubercles; median apical process well developed (Fig. 2). Cercus short with robust base and upturned tapering apex (Fig. 3). Subgenital plate short with rounded apex. Epiphallus divided into right and left halves, connected together only by membrane; ancorae mod-



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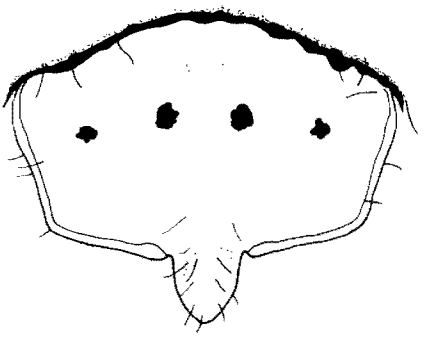

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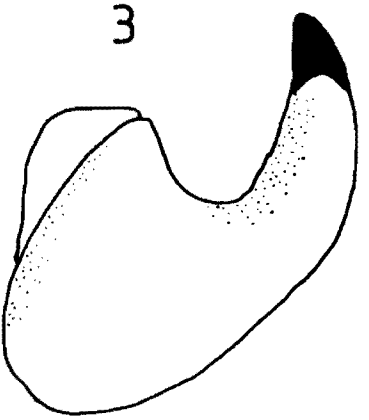

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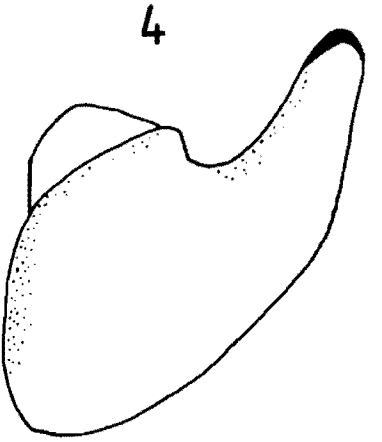

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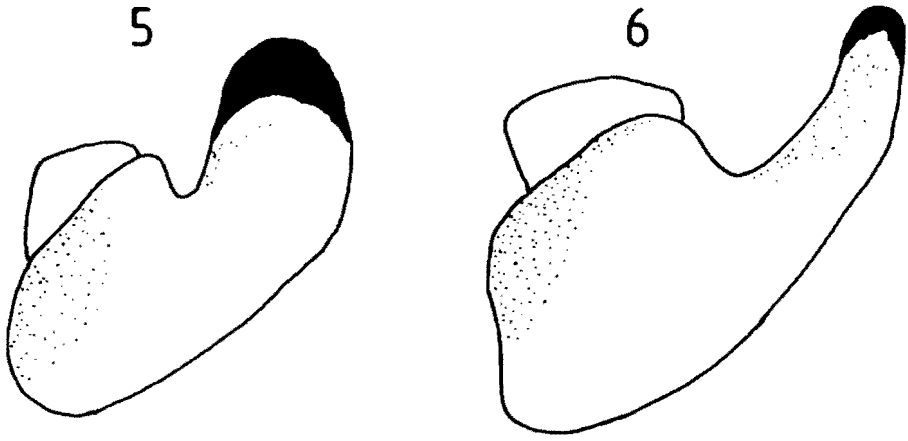


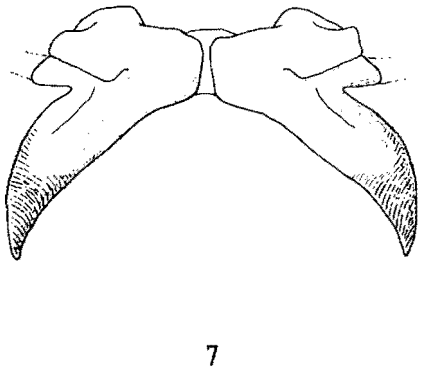
Figs 1–6. *Euryphymus kalahariensis* sp. nov., ♂ Holotype: 1, head and pronotum, dorsal; 2, supra-anal plate, dorsal; 3, left cercus, lateral; 4–6, ♂ left cercus, 4, *E. tuberculatus*: 5, *E. haematopus*; 6, *E. eremobioides*.

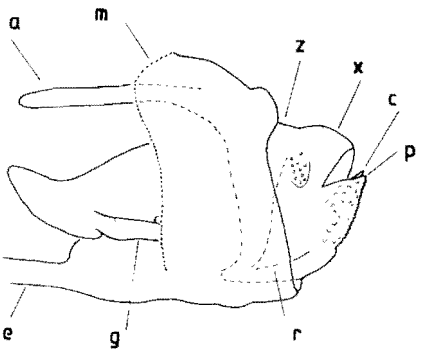
erately large; lophi large, slightly incurved, apices acute (Fig. 7). Cingulum with narrow apodemes; zygoma with posterior extension bearing ventrally large cingular arch which ventrally gives rise to pair of cingular valves, each valve lying in groove in inner face of corresponding penis valve and pointed terminally. Rami of cingulum each gives rise ventrally to extension which runs backwards to abut against corresponding penis valve. Penis with two valves, each with large basal portion bearing gonopore process, connected by narrow flexure region to apical portion (Fig. 8). General colouration grey-brown. Hind wing with dark anterior veins, basal part of vannus extremely pale yellow, otherwise hind wing colourless. Medial area of inner side of hind femur black, except at posterior end which is yellow as is upper carinula. Hind tibia yellow.

FEMALE. Similar to male but differing by being larger, by the fastigial concavity being wider and shallower, by the mesosternal interspace being slightly shorter than broad, and by having small pointed cercus. Ovipositor with slightly curved, hairy valves, dorsal valves appreciably longer than ventral; ventral valves with obtuse external lateral projection.

PARATYPIC VARIATION. In both sexes, dorsum of pronotum smooth to slightly rugose, with variable number of small tubercles; general body colour grey-brown to brown, occasional individuals are orange-brown; vannus of hind wing very pale yellow or colourless. Male supra-anal plate with variable number of black sclerotized tubercles (Figs. 9–12).

MEASUREMENTS. Total length of animal, mean and range: ♂ 24,8, 23,5–26,5; ♀ 33,2, 28–36 mm.





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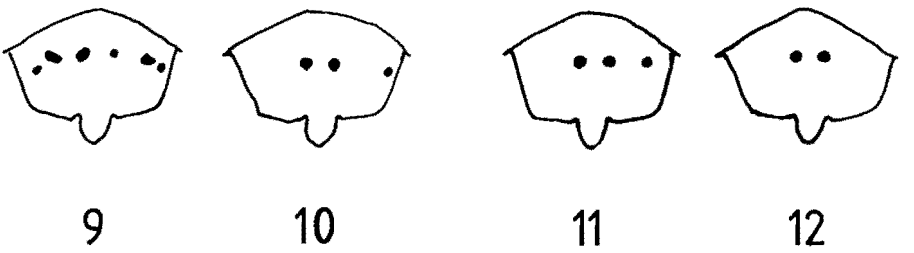

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Figs 7–12. *Euryphymus kalahariensis* sp. nov., ♂ Holotype: 7, epiphallus, dorsal; 8, endophallus, left lateral view: a, apodeme of cingulum; c, tip of valve of cingulum; e, ejaculatory duct; g, gonopore process; m, ectophallic membrane; p, tip of penis valve; r, extension of ramus of cingulum; x, posterior extension of zygoma; z, zygoma. *E. kalahariensis*, ♂ paratypes, variation in arrangement of tubercles on the supra-anal plate.

MATERIAL EXAMINED. Holotype, ♂. BOTSWANA: Southern District, 3–20 km W of Samane, 18–22.xii. 1981. Paratypes: same data as holotype, 14 ♂, 11 ♀; same data except 15–18.xii.1980, 5 ♂, 2 ♀; Kgatleng District, Mosomane, Masama Ranch, 5.x.1978, 1 ♀; Ghanzi District, Central Kalahari Game Reserve, 30–40 km SE of Kikao, 20/21.xii.1978, 1 ♂, 5 ♀; Maokane, 1–3 km NW of Nhane borehole, 19–22.i.1982, 4 ♂, 5 ♀; border between Southern and Kgalagadi Districts, 10 km W of Kokong, 3.i.1982, 2 ♂, 1 ♀; Central District, about 103 km SW of Makoba quarantine camp, 18.i.1983, 1 ♂; Kgalagadi District, Khuis, about 25 km NW of Lobu Ranch, 8.ii.1983, 1 ♀; Middelpits, Lobu Ranch, 8/9.ii.1983, 2 ♂, 3 ♀; 44 km from Tshabong towards Mabuasehube Game Reserve, 11.ii.1983, 1 ♂; De Beer's cut line, about 80 km E of Mabuasehube Game Reserve, 13.ii.1983, 1 ♀; 4 km E of Tshane, 5.xii.1983, 1 ♂, 1 ♀; 2,5 km E of Tshane, 13.xii.1983, 1 ♀; 27,5 km ENE of Tshane, 15.xii.1983, 1 ♀ (all Barker). SOUTH AFRICA: Cape Province, Kuruman, 'B.B.L.', January 1928, 1 ♀ (Faure); near Botswana Border, 30 M SE of Twee Rivieren, 8–13.ii.1961, 1 ♂ (Brown, Annecke, Munro); Kalahari Gemsbok National Park, Twee Rivieren, February 1964, 1 ♀ (Burger); (same park), Leeudril, 5.ii.1970, 2 ♂ (Brown); 39 M SE Mier, Inkbospan,

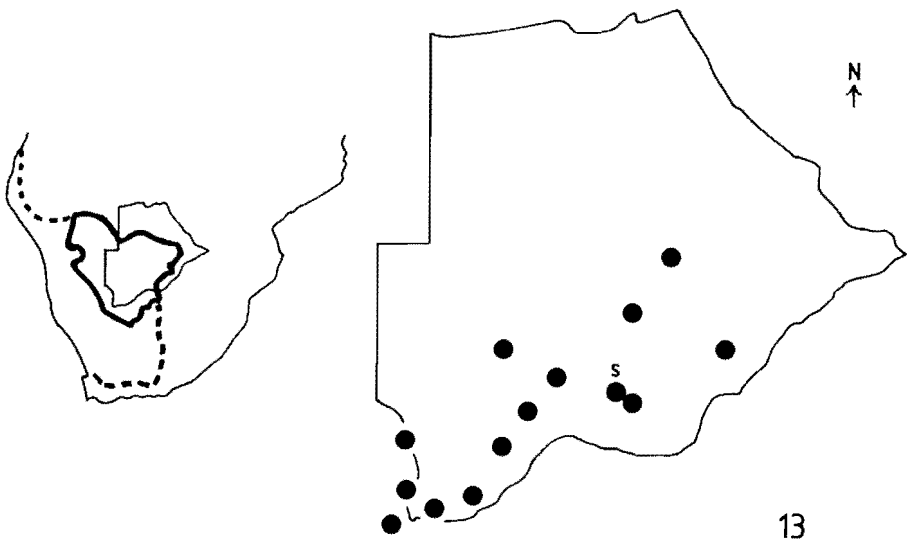

Fig. 13. Left, the Kalahari Region (continuous thick line) and the rest of the Southwest Arid Region (dashed thick line) (from Barker 1983). Right, known distribution of *E. kalahariensis*. s, Samane.

8.ii.1970, 1 ♀ (Brown); Kalahari Gemsbok National Park, 5 km W of Nossob Rest Camp, 15.iv.1982, 1 ♂ (Barker). The male holotype will be deposited in the National Collection of Insects, Plant Protection Research Institute, Pretoria. Paratypes of both sexes will be deposited in this same collection, as well as in the National Museum, Gaborone, Botswana, and the British Museum (Nat. Hist.), London.

DISTRIBUTION. The geographical distributions of southern African species of *Euryphymus*, lie largely within the southwest arid region as defined by Davis (1962) and shown in Fig. 13. However, *E. tuberculatus* is known from as far north as the Caprivi strip and western Zimbabwe and there are isolated records of both *E. haematopus* and *E. eremobioides* from the 'Congo'. Also both *E. haematopus* and *E. tuberculatus* are recorded from the extreme southwest of the Cape Province.

E. kalahariensis is so far known only from the Kalahari region (Fig. 13). This is of interest because the Kalahari seems to have few acridoidean endemics in contrast to some neighbouring regions. There are marked climatic, floristic and faunistic changes along the northeast to southwest Kalahari axis, so numerous organisms are known which appear to have distribution boundaries on this axis (Barker, 1983). It is therefore significant that the known distribution of *E. kalahariensis* extends almost the whole way from the northeastern border to the southerwestern border of the Kalahari.

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